

ABSTRACT OF THE DISCLOSURE

A fuel processor for rapidly achieving operating temperature during startup. The fuel processor includes a reformer, a shift reactor, and a preferential oxidation reactor is provided for deriving hydrogen for use in creating electricity in a plurality of fuel cells. A first combustion heater system is coupled to at least one of the reformer, the shift reactor, and the preferential oxidation reactor to preheat the component during a rapid startup sequence. That is, the first combustion heater system is operable to produce thermal energy as a product of the combustion of air and fuel in the form of a first heated exhaust stream. This first heated exhaust stream is then used to heat the component directly or by using a heat exchanger type system. The first heated exhaust stream is also used by a second combustion device as a source of oxygen or diluent.